

## Undescribed Species of Crane-Flies from the Western United States and Canada (Dipt.: Tipulidae). Part XIX

By CHARLES P. ALEXANDER, Amherst, Massachusetts \*

The preceding part under this general title was published in ENTOMOLOGICAL NEWS, 69: 215-221, 1958. Most of the species discussed herewith were taken in California in 1957 and 1958, the types of the novelties being preserved in the Alexander Collection of Crane-flies.

### *Limonia (Dicranomyia) ypsilon* new species

Allied to *gracilis*; general coloration of mesonotal praescutum light brown with three darker brown stripes; wings subhyaline, stigma slightly darker; male hypopygium with the proctiger dark brown, Y-shaped, very conspicuous in slide mounts.

♂. Length about 6-6.5 mm.; wing 6.5-7 mm.

Rostrum yellow; palpi brownish black. Antennae black throughout; flagellar segments oval to long-oval, verticils relatively inconspicuous. Head grayish brown, the narrow orbits more yellowed, sparsely pruinose.

Pronotum dark brown. Mesonotal praescutum with the ground light brown, with three more or less distinct darker brown stripes, the lateral pair continued across the suture onto the scutal lobes; scutellum light brown, paler apically; mediotergite dark brown, sparsely pruinose, pleurotergite paler. Pleura obscure yellow to brownish yellow, variegated with darker, especially on the anepisternum and ventral sternopleurite. Halteres elongate, stem dusky, narrowly yellowed at base, knob dark brown. Legs with the coxae and trochanters testaceous yellow; remainder light brown to brown, the outer tarsal segments darker. Wings subhyaline, stigma only slightly darker, inconspicuous; veins pale brown. Venation:  $Sc_1$  ending

\*Contribution from the Entomological Laboratory, University of Massachusetts.

I am deeply indebted to the National Science Foundation for financial aid to cover travel expenses in Western North America in 1956, 1957 and 1958.

about opposite origin of  $Rs$ ,  $Sc_2$  far retracted,  $Sc_1$  alone subequal to or longer than  $Rs$ ;  $m-cu$  at or close to fork of  $M$ .

Abdominal tergites dark brown, the posterior borders narrowly obscure yellow, most evident on the intermediate segments; sternites paler brown, posterior borders yellowed; hypopygium obscure yellow to brownish yellow. Male hypopygium generally as in *gracilis*, including the large tergite, straight dorsal dististyle, and unequally bifid rostral prolongation. The most evident difference, which has suggested the specific name, is the dark brown Y-shaped proctiger, very conspicuous in slide mounts. In *gracilis*, the proctiger appears as two pale and inconspicuous divergent lobes or blades. The tergite differs in shape and structure in the two species, being more nearly oval, with heavily thickened margins, in *gracilis*; in *ypsilon* the cephalic border is strongly convex, the posterior margin nearly straight to subtruncate. Both species have the aedeagus conspicuously hairy.

*Habitat.* Pacific States. *Holotype*: ♂, Coldwater Creek, Mammoth Lakes District, Mono Co., CALIFORNIA, 9,000 feet, July 16, 1957 (C. P. Alexander). *Paratopotypes*: ♂♂. *Paratypes*: Numerous specimens from various localities, as follows: ♂ from the type series of *particeps* Doane, Keyport, Kitsap Co., WASHINGTON, July 1905 (R. W. Doane); Stevens Pass, Chelan Co., Washington, 4,000 feet, July 8, 1948 (C. P. Alexander); Peavine Ridge, Yamhill Co., OREGON, March 26, 1946, July 1, 1946 (K. M. Fender); Silver Creek Falls, Marion Co., Oregon, May 9, 1948 (K. M. Fender); State Line Brook, Del Norte Co., California, July 27, 1958 (C. P. Alexander); Prairie Creek State Park, Humboldt Co., California, July 23, 1958 (C. P. Alexander); Burney Falls State Park, Shasta Co., California, August 4, 1958 (C. P. Alexander); Lost Creek, north of Lassen Volcanic National Park, Shasta Co., California, 5,000 feet, August 10, 1958 (C. P. Alexander); Helfer's Ranch, Mendocino Co., California, July 19, 1958 (C. P. Alexander & Jacques Helfer); Russian Gulch State Park, Mendocino Co., July 20, 1958 (C. P. Alexander & Jacques Helfer); Cleone Lake, MacKerricher State Park, Mendocino Co., July 20, 1958 (C. P.

Alexander & Jacques Helfer); Lagunitas Creek, Samuel P. Taylor State Park, Marin Co., California, in redwood forest, July 16, 1958 (C. P. Alexander); Pinecrest, Tuolumne Co., California, July 29, 1947 (Paul H. Arnaud); Kings Canyon National Park at Swale Camp, Tulare Co., California, 6,400 feet, July 19, 1957 (C. P. Alexander); Sequoia National Park, Tulare Co., California, June 6-8, 1948 (Otto Degener), July 18, 1957 (C. P. Alexander); Chiricahua Mts., Cochise Co., ARIZONA, 6,000 feet, June 4, 1942 (C. P. Alexander). This also includes all published records for *particeps* Doane between 1920 and 1958 with the exception of the actual types from Keyport, Washington.

The present fly has been confused under the name *particeps* Doane (ENT. NEWS, 19: 7-8; 1908). In the type series of the latter, all from Keyport, Washington, collected in July 1905 by Doane and including nine males and six females, it is now evident that two species are confused. In an exchange of specimens with Doane I received a paratype male which naturally was considered as being conspecific with the holotype. However an examination of this latter specimen in San Francisco in July 1946 clearly showed that this was a different species from the paratype that I had received earlier. The actual type of *particeps* is identical with the species later described as *Limonia* (*Dicranomyia*) *uinta* Alexander (AMER. MIDL. NAT., 39: 38-40, figs. 13, 17; 1948) and true *particeps* is at present known only from Utah and Washington. I am greatly indebted to Drs. Edward S. Ross and Edward Kessel for preparing the genitalic mount of the holotype of *particeps* and in this manner finally clearing up a confusing situation in our study of the Western North American Tipulidae.

The nearest relatives of *ypsilon* are *L. (D.) particeps*, as discussed, and *L. (D.) gracilis* (Doane). The latter is a larger more yellowish fly, with the hypopygial structure distinct, as discussed above. It is widely distributed in the west and likewise occurs in the White Mountains, New Hampshire (Headwall of Tuckerman's Ravine, Mount Washington, 5,000 feet, in late August). Moreover, the northern European *L. (D.) hal-*

*terella* Edwards appears to be conspecific and would become the valid name for the fly in case the name *gracilis* is ever considered to be invalidated by prior use in *Limonia* (*Limnobia*), as by *Limnobia gracilis* Wiedemann (1828) and *Limnobia gracilis* Zetterstedt (1838).

#### *Limnophila* (*Phylidorea*) *breviflosa* new species

General coloration of thorax brownish yellow, the praescutum darker medially, pleura reddish; femora yellow, the tips narrowly darkened; wings tinged with yellow, stigma dark brown, oval; male hypopygium with the three branches of the aedeagus elongate but distinctly shorter and stouter than in all related regional species; gonapophysis appearing as an exceedingly narrow blade that is extended into an acute spine.

♂. Length about 9.5 mm.; wing 8.5 mm.; antenna about 1.6 mm.

♀. Length about 10–12 mm.; wing 10–12 mm.

Rostrum plumbeous; palpi black. Antennae with scape black, pedicel and flagellum light brown; flagellar segments passing through oval to elongate. Head light gray.

Pronotum brown, paler laterally. Mesonotal praescutum dark brown medially, the sides broadly brownish yellow; scutal lobes darkened, especially on the mesal parts; scutellum and mediotergite obscure yellow, narrowly darkened medially; pleurotergite reddish yellow. Pleura reddened, vaguely pruinose; meron and metapleura yellowed. Halteres with stem pale yellow, knob infuscated. Legs with coxae reddish yellow; trochanters yellow; femora yellow with a narrow vaguely indicated darkening at or close to the tip; tibiae brownish yellow, narrowly darkened at tip; tarsi obscure yellow, terminal segments darker. Wings tinged with yellow, the prearcular and costal fields clearer yellow; stigma oval, dark brown; very narrow pale brown seams over the cord, fork of  $M_{1+2}$  and along vein *Cu*, the latter chiefly in cell *M*; veins pale brown, slightly brightened in the yellowed fields. Venation: *Rs* relatively short, a little longer than cell *1st M*<sub>2</sub>, weakly angulated near origin; cell *M*<sub>1</sub>

longer than its petiole; *m-cu* at or close to midlength of  $M_{3+4}$ .

Abdomen obscure brownish yellow, in the male the subterminal segments blackened to form a broad ring, hypopygium yellow; in the female, subterminal ring narrower, genital shield fulvous. Male hypopygium with the median tergal lobes oval, separated from one another by pale membrane. Terminal point of outer dististyle slender; outer half of inner style strongly narrowed, subcylindrical. Aedeagus a little longer and stouter than the lateral branches, all three elements distinctly shorter and relatively stouter than in other regional members of the *adusta* group. Gonapophysis appearing as an exceedingly narrow blade that is extended into an acute spine.

*Habitat.* CALIFORNIA. *Holotype:* ♂, Intake Camp, Bishop Creek, Inyo Co., 8,000 feet, July 8, 1957 (C. P. Alexander). *Allotopotype:* ♀, pinned with type. *Paratopotype:* 1 ♀, pinned with type. *Paratypes:* 4 ♀♀, Big Pine Creek, Inyo Co., 9,000 feet, July 11, 1957 (C. P. Alexander).

There are four regional species of the *adusta* group that have the male hypopygium much as in the present fly. Of these, *Limnophila (Phylidorea) æquiatra* Alexander and *L. (P.) olympica* Alexander are black species while *L. (P.) pacalis* Alexander and *L. (P.) snoqualmiensis* Alexander are colored more as in the present fly but with the details of structure of the hypopygium distinct. The most similar species is *snoqualmiensis*. The relatively short stout branches of the aedeagus provide the strongest hypopygial characters in the present fly.

### *Molophilus (Molophilus) gracilipes* new species

Belongs to the *gracilis* group, *pubipennis* subgroup; allied to *kulshanicus*; size large (wing of male almost 6 mm.); general coloration of thorax reddish brown; legs extensively brownish black; wings weakly tinged with brown, without a darkened seam along vein *Cu*; vein  $R_{2+3}$  oblique at origin; male hypopygium with the dorsal lobe of the basistyle slender and pointed; dististyles slightly narrower than in *kulshanicus*.

♂. Length about 5 mm.; wing 5.9 mm.; antenna about 1.5 mm.

Rostrum and palpi black. Antennae black; basal flagellar segments elongate-oval, with long verticils and a dense white pubescence; outer segments smaller with shorter verticils. Head dark brownish gray.

Pronotum clear light yellow, dark brown on sides; pretergites narrowly obscure yellow. Mesonotum almost uniform medium brown or reddish brown, without distinct pattern. Pleura concolorous, dorsopleural membrane slightly more yellowed. Halteres yellow. Legs with the coxae and trochanters obscure brownish yellow; femora brownish black, bases obscure yellow; tibiae and tarsi dark brown; legs long and slender, especially the fore and hind pairs; posterior tibia a trifle shorter than the femur, slender. Wings weakly tinged with brown, prearcular and costal fields more yellowed; no darkened seam along vein *Cu* as in *kulshanicus*; veins very pale brown, macrotrichia darker. Venation:  $R_2$  lying distal to *r-m*;  $R_{2+3}$  more oblique at origin than in *kulshanicus*; petiole of cell  $M_3$  about twice *m-cu*; vein 2nd *A* ending shortly beyond the level of origin of petiole of cell  $M_3$ .

Abdomen, including hypopygium, dark brown. Male hypopygium, as compared with *kulshanicus*, with the dorsal lobe of the basistyle slender and more pointed; spicules of ventral lobe less numerous but similarly crowded. Both dististyles slightly narrower; phallosomic plate less obtuse at apex.

*Habitat.* CALIFORNIA. *Holotype:* ♂, West side of Sonora Pass, along Middle Fork of the Stanislaus River, Tuolumne Co., 8,600 feet, June 27, 1957 (C. P. Alexander).

The most similar regional species is the more northern *Molophilus (Molophilus) kulshanicus* Alexander, which differs in the dark body coloration, details of pattern of the legs and wings, and in slight differences in structure of the male hypopygium.



**Molophilus (Molophilus) unispiculatus** new species

Belongs to the *gracilis* group, *pubipennis* subgroup; size medium (wing of male 4.5 mm.); mesonotum grayish brown, lateral borders and pleura yellow; knobs of halteres dark brown; legs chiefly brownish black; wings whitish, veins and macrotrichia darkened;  $R_2$  in virtual transverse alignment with  $r-m$ ; male hypopygium with the spicules of ventral lobe of basistyle extended into hairlike points; outer dististyle long and straight, its distal third curved to an acute point, spicules very reduced, restricted to the outer third; inner style smaller, strongly curved to the subacute point, surface with spicules, the more basal ones small.

♂. Length about 4 mm.; wing 4.5 mm.; antenna about 1.1 mm.

Rostrum dark brown; palpi brownish black. Antennae with scape and pedicel testaceous, flagellum black; flagellar segments suboval, with elongate verticils. Head brownish gray.

Pronotum and pretergites yellow. Mesonotal praescutum grayish brown, humeral and lateral borders yellow; posterior sclerites of notum chiefly infuscated. Pleura and pleurotergite yellow, ventral sternopleurite vaguely more darkened. Halteres with stem whitened, knob dark brown. Legs with coxae and trochanters yellow; femora brownish black, the color produced chiefly by dark vestiture, only the bases restrictedly paler; tibiae brownish black; tarsi black. Wings whitish, prearcular field restrictedly more yellowed; veins brown, macrotrichia still darker. Venation:  $R_2$  virtually in transverse alignment with  $r-m$ ; petiole of cell  $M_3$  about two and one-half times  $m-cu$ ; vein  $2nd A$  ending about opposite  $m-cu$ .

Abdomen dark brown, hypopygium yellowed. Male hypopygium with the dorsal lobe of the basistyle relatively slender, its apex obtuse; ventral lobe with about 16 to 18 spicules that are extended into hairlike points and a marginal series of elongate setae. Outer dististyle long and straight for about two-thirds the length, thence curved into a long acute spine, on outer margin before tip with a single projecting spicule, with smaller ones back from the tip, all restricted to the outer third, surface

of outer half with scattered weak setae; inner style smaller, strongly curved to the subacute tip, with spicules over virtually the whole surface, the basal ones very small. Phallosomic plate obtuse at tip.

*Habitat.* CALIFORNIA. *Holotype:* ♂, Coldwater Creek, Mammoth Lakes District, Mono Co., 9,000 feet, July 28, 1957 (C. P. Alexander).

The present fly is most similar to species such as *Molophilus* (*Molophilus*) *rainierensis* Alexander, differing especially in the coloration of the body and wings and in the structure of the male hypopygium.

---

## Insects captured in black-painted and unpainted light traps<sup>1</sup>

By S. W. FROST, The Pennsylvania State University

During the summer of 1957, two identically-constructed Pennsylvania insect traps were operated adjacent to each other. One was a standard bright aluminum trap, the other was painted entirely dull black. The traps were hung six feet from the ground and so arranged that the lamps of the two traps were 3 feet apart. The positions of the traps were reversed every three days.

Many of the records have been combined to condense the table. The midges include Chironomidae, Cecidomyiidae, Mycetophylidae and Psychodidae. Miscellaneous Coleoptera include Phyllophaga, Aphodius, elm leaf beetles and several groups which were taken in small numbers.

An analysis of the catches is given in tables 1 and 2. The results indicate that the unpainted trap was approximately twice as effective as the black-painted trap. The moths, especially Pyralidae, Crambidae, Arctiidae and Geometridae, seemed less

<sup>1</sup> Authorized for publication on August 1, 1958, as paper No. 2282 in the journal series of the Pennsylvania Agricultural Experiment Station.